DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/19/09 has been entered.

All outstanding objections and rejections, except for those maintained below, are withdrawn in light of applicant's amendment filed on 8/19/09.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 – 35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1- 32 of copending Application No. 10/576,256 in view of Feraudy (US 6,460,788). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Both applications claim a method for selective separation by density of a mixture of waste synthetic organic materials to be reused having a density of at least 1. The density separation is done in a separator in an aqueous suspension with powder particles used for creation of density levels. Dynamic stabilization is done with compounds such as phosphates, polymers of acrylic acids, etc. The instant application claims further dynamic stabilization through circulation in the separator, the circulating flow rate values (claims 1, 8, and 9) of which are absent in 10/576,256. Feraudy discloses a method fro selective separation by density of a mixture of polymers to be reused. The density separation is done in an aqueous suspension with powder particles to create density levels, and with stabilization agents. Feraudy discloses the use of a separator with circulation rates that vary depending on how the procedure is done. It would have been obvious to one of ordinary skill in the art to have achieved the dynamic stabilization of the suspension in 10/576,256 with Feraudy's circulation rates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1 – 4, 6 - 11 and 28 – 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788).

Regarding claims 1 and 2: **Feraudy** discloses (abstract, column 3, lines 6 – 34, column 4, lines 14 - 19) a method of separating a mixture of polymers, such as PE, PP, PS, ABS, PPMA, PVC, etc., derived from waste using a density separation technique. The density separation is done in a liquid medium (column 3, lines 23 – 25). The density of the polymers range from below 1 to 1.25 (column 5, lines 65 - end, column 6, lines 1 - 35). The density separation can be done in a single separator or in several separators connected in parallel or in series (column 3, lines 6 – 35, column 6, lines 31—35, column 8, lines 41 - 45). Feraudy preferably uses floatation hydraulic separators comprising water, wetting agents and inorganic compounds (column 6, lines 36 – 46).

Feraudy is silent on the size of the powder particles, circulating flow rate and precision level of the density reading.

Regarding the particle size: since Feraudy discloses the same particles claimed by Applicant and for the same purpose as claimed by Applicant of making a slurry with said particles in combination with water and the polymers to be separated by density, said particles are inherently of the same size. Since the PTO does not have proper

means to conduct experiments, the burden of proof is now shifted to applicant to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); in re Fitzgerald, 205 USPQ 594 (CCPA 1980). Additionally, Feraudy's silence as to the size of the powder implies that any typical powder size can be used with reasonable expectation of success. Feraudy also discloses various types and densities of polymers and various types of powder particles. In light of the above, it would have been obvious to one of ordinary skill in the art to have varied the size of the powder particles, depending on the polymers and powders used, for the desired results in density separation. Additionally, similarly to Applicant (see paragraph 0075 of the instant published application), Feraudy also discloses a CoAtex stabilizing agent and the creation of a circulating flow of the produced suspension. Therefore, the rheological and invariance characteristics of the density are inherently stabilized to the same precision as claimed by Applicant.

Regarding the flow rate: Feraudy discloses that the circulation rates vary depending on how the procedure is done, such as once or batchwise, and should be optimized accordingly (column 12, lines 12 - 17). Feraudy is silent on an exact number for the flow rate or hourly turnover rate. The case law has held that “A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d618, 195 USPQ 6 (CCPA 1977). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have adjusted the flow rate or hourly turnover rate as necessary through routine optimization to obtain the

desired results since Feraudy discloses that the circulation rates vary depending on how the procedure is done. It is also noted that Applicant admits ([0097]) that a person skilled in the art would know how to adjust the flow rate to keep particles in a homogeneous environment.

Regarding the precision level: Feraudy discloses density separation of the polymers where the densities measure 1.25, 1.18, 1.15, 1.10, 1.05 and 1 (column 6, lines 49 – 56, column 7, lines 1 – 15, column 9, lines 16 - 30), corresponding to a precision level of +/-0.005. Applicant claims a precision level of +/- 0.0005. Neither applicant nor Feraudy disclose the brand of the apparatus used for density readings. The precision of the reading is dependent on the apparatus used. Since Feraudy is separating out the same polymers and by the substantially identical method as claimed by applicant, the densities of both inventions are inherently the same. Alternatively, it would have been obvious to one of ordinary skill in the art to have varied the experimental conditions, such as type of the density reading device or the flow rate, to have arrived at the desired precision reading. Additionally, similarly to Applicant, Feraudy also discloses a CoAtex stabilizing agent and an adjustable flow rate for the suspension. Therefore, the rheological and invariance characteristics of the density are inherently stabilized to the same precision as claimed by Applicant, even if Feraudy's instrumentation does not read the results to +/-0.0005.

The inorganic compound used to increase the density of the water comprises clays, bentonite or soluble compounds and salts, calcium carbonate, talc, silica, alumina (column 6, lines 36 – 46, column 8, lines 18 - 20), reading on applicant's claims 3 and 4.

The wetting agent, such as SP 30 S from CoAtex, is used to keep the clay in suspension (column 6, lines 46 – 48), reading on applicant's use of a stabilizing agent of claim 11.

The hydraulic separators disclosed by Feraudy can be static separators, dynamic separators, electrostatic, or those with a pump and a cyclone to produce a circulating sorting flow (column 12, lines 3 – 11), reading on applicant's claims 1, 6 – 9, 28 and 30. Feraudy discloses that the circulation rates vary depending on how the procedure is done, such as once or batchwise, and should be optimized accordingly (column 12, lines 12 - 17). Feraudy is silent on an exact number for the flow rate or hourly turnover rate. However, as discussed above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have adjusted the flow rate or hourly turnover rate as necessary through routine optimization to obtain the desired results, since Feraudy discloses that the circulation rates vary depending on how the procedure is done. It is also noted that Applicant admits ([0097]) that a person skilled in the art would know how to adjust the flow rate to keep particles in a homogeneous environment.

Feraudy discloses doing a first phase of density separation where the density is decreased from 1.25 to 1, followed by a second phase of density separation, where the density is increased from 1.25 – 1 (column 3, lines 6 – 35), reading on applicant's claim

29. The hydraulic separator can have a pump and a cyclone to produce a circulating sorting flow (column 12, lines 3 – 11), reading on claim 30. The various stages of separation in parallel or in series (column 3, lines 6 – 34, column 6, lines 31 – 35), read on claim 31.

Feraudy is silent on the conductivity of the aqueous phase claimed in claim 10. However, applicant admits ([0086]) that the water to be used in making the aqueous suspension can be spring water, water for human consumption, industrial water, sea water, etc. Therefore, the conductivity of Feraudy's aqueous suspension is inherently the same as applicant's claimed suspension, since the water can come from any source and Faraday is not specific as to what water to use, and both applicant and the prior art add inorganic compounds and stabilizing agents to make the same suspension for the same purpose of separating polymers according to densities.

Feraudy discloses that the density separation can be done on a smooth or stepwise function (column 3, lines 12 – 16), in one separator or in more than one separator (column 6, lines 64 – 67). The density is decreased or increased by automatic addition of a precise amount of water (column 6, lines 57 – 61), or by an automatic addition of a precise amount of clay (column 9, lines 5 – 15), which reads on applicant's claim to continuously control the aqueous suspension in claim 32. Feraudy is silent on the mechanics of how the automatic addition of precise amounts of water is performed, as claimed by applicant in claims 33 and 34 where electrical valves connected to tanks allows more or less water to be added depending on density readings. It can be assumed that since Feraudy's addition of water or clay is <u>automatic</u> and <u>precise</u>, it is

done electronically (because it is disclosed to be an automatic process), with automatic reading of density, and the water or clay comes from a reservoir (because the process is automatic, the addition of water is not done manually).

Claims 12 - 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788) in view of Allen (WO 2004/009200) and further in view of Boutin et al (US 4,504,643).

The disclosure of Feraudy is discussed above and is incorporated herein by reference.

Feraudy discloses the use of wetting agents/stabilizing agents such as CoAtex's SP 30 S, to keep the clay in suspension (column 6, lines 46 – 48), reading on applicant's use of a stabilizing agent. CoAtex is an acrylic polymer used as wetting/stabilizing agent, which is also used by Applicant as the stabilizing agent (paragraph 0075 of instant published application), and therefore Feraudy's CoAtex reads on Applicant's claims. Feraudy is silent as to the specific molecular structures of CoAtex or acrylic polymers as claimed by applicant.

Boutin discloses (abstract, column 1, lines 1 – end, column 2, lines 1 – 30 and 63 – end, column 3, lines 1 - 30) the use of water soluble polymers used in aqueous environments as stabilizers/scale inhibitors to keep certain compounds, such as calcium carbonate in suspension and so these compounds don't separate out to the bottom of the vessel. The aqueous environment can be underground water, watercourse water,

sea water, etc. The stabilizer polymer includes for example, alkali metal polyphosphates, homopolymers or copolymers of acrylic or methacrylic acid and corresponding alkali metal salts thereof, homopolymers or copolymers of maleic acid, polymers of ethylenic monoacids, copolymers of an alkali metal methallylsulfonate, such as sodium methallylsulfonate, with a monoethylenically unsaturated acid such as acrylic or methacrylic acid. The above stabilizers read on several species claimed by applicant in claims 12 - 24. The metal ions read on applicant's claim 26. The molecular weight of a water soluble copolymer of acrylic acid and vinyl sulfonate ranges from 1,000 to 25,000, which are within applicant's claimed range of 5,000 – 100,000 of claim 25.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted Feraudy's stabilizing agent for any one of Boutin's stabilizing agents since both disclose the use of acrylic polymers as stabilizing agents and the purpose of both agents is the same, which is to stabilize the aqueous suspension that contains particles, such as calcium carbonate, salts, clays, etc., so that these particles don't separate out from the suspension.

Applicant claims 0.02% - 5% of stabilizing agent with respect to the powder particles in claim 27. Feraudy and Boutin are silent on this ratio. However, Boutin discloses (column 3, lines 25 – 30) doses of 0.2 to 50 mg/liter (i.e., 0.02 – 5%) of stabilizing agent per liter of water. Since Feraudy's slurry contains a large amount of powder particles so that it can be considered to be slurry, it necessarily contains a much

larger amount of powder particles than stabilizing agent. The exact amounts of each can be optimized for the desired results.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788) in view of Allen (WO 2004/009200)

Feraudy's disclosure is discussed above and is incorporated herein by reference.

Feraudy discloses the use of waste polymers but is silent on the type of said waste such as automobiles or durable consumer goods as claimed in claim 35.

Allen discloses (page 1, lines 11 – 15 and lines 26 - end) a method of separating mixtures of used polymers using a density separation technique. The polymers are added to slurry consisting of water and magnetite, titanium dioxide, sand, ferrosilicate or other materials, reading on applicant's powders. The used polymers are obtained from durable goods.

It would have been obvious to one of ordinary skill in the art to have used Allen's waste polymers that originated as durable goods to perform the density separation as disclosed by Feraudy, since Feraudy also discloses the use of waste polymers for the same purpose of sorting the various polymers by the same method of density separation in an aqueous environment with powder particles.

Response to Arguments

Applicant's arguments filed 8/19/09 have been fully considered but they are not persuasive.

Applicant requests that the double patenting rejection be held in abeyance until the current application is in condition for allowance.

It is noted that the provisional ODP rejection is not the only outstanding rejection in the instant application. Therefore the rejection is maintained as per reasons of record. It is also noted that the applicants did not argue the rejection on the merits.

Applicant submits that Feraudy's separation can only achieve a differential of 0.03 because Feraudy's mixture of separated materials is treated in one or several parallel separators and purification lines in series.

Applicant's argument is no convincing. Feraudy disclosure of the separators, and the separation procedure, is substantially identical to Applicant's claimed invention. In fact, Applicant specifically claims various separators placed one after another, using a cascade system, reading on Feraudy's disclosure. Feraudy also uses the same materials as claimed by Applicant (the waste polymeric material, powder such as clays, salts or sand, and CoAtex wetting agents, and specifically the acrylic polymers as disclosed by Boutin). Therefore, Feraudy's disclosure can also be read to a higher accuracy if proper instrumentation is used. Neither Feraudy nor Applicant discloses the brand of the density measurement reading device used, of which the precision of the reading depends on. Given that the method of separation and the materials used by Feraudy and Applicant are the same, one can achieve the same differential by using the same brand of separators and of density reading equipment.

Applicant submits that the amended claims now read on powder particles smaller than 5 microns and between 1 to 0.005 microns and that Allen's disclosure, therefore, reads away from the claims; that Feraudy does not disclose the size of the powder particles.

Regarding the Allen reference, Applicant's argument is convincing and said Allen reference is withdrawn in view of Applicant's amendment of the particle size. However, as discussed above, since Feraudy discloses the same particles claimed by Applicant and for the same purpose as claimed by Applicant of making a slurry with said particles in combination with water and the polymers to be separated by density, said particles are inherently of the same size. Since the Office does not have means to perform experimentation, the burden shifts to Applicant to prove otherwise. Additionally, Feraudy's silence as to the size of the powder implies that any typical powder size can be used with reasonable expectation of success, and one of ordinary skill in the art would have known to choose powders of specific dimensions to achieve the desired density separation depending on the waste polymers being treated and the type of particle powders being used.

The Allen reference is used herein to show that used polymers obtained from durable goods can be used in Feraudy's disclosed process.

Applicant submits that Boutin does not overcome the deficiencies of Feraudy since, for example, Boutin does not teach particles size.

Applicant's argument is not convincing. Feraudy discloses the use of the same CoAtex stabilization agents, to keep the powder in suspension, as claimed by Applicant. Boutin is used herein to teach the specific structures and substituents of acrylic polymers (of which the CoAtex product is one) that are used as stabilization agents, such as the sulfonate of acrylic polymers claimed by Applicant, which are used for the same purpose of keeping powders in suspension.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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